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Human Recombinant SCF (E. coli-expressed)

Stem cell factor

Catalog #78062.1	10 µg
Catalog #78062	100 µg
Catalog #78062.2	1000 µg

Product Description

Stem cell factor (SCF) is an early-acting cytokine that plays a pivotal role in the regulation of embryonic and adult hematopoiesis. SCF promotes cell survival, proliferation, differentiation, adhesion, and functional activation of cells at multiple levels of the hematopoietic hierarchy. Together with other cytokines such as thrombopoietin and Flt3/Flk-2 Ligand, SCF is commonly used to promote expansion of primitive hematopoietic stem cells and multi-potent progenitor cells in culture (Kent et al.; Martin et al.). In synergy with various growth factors, including IL-2, IL-3, IL-6, IL-7, G-CSF, and erythropoietin, SCF increases proliferation and differentiation of myeloid and erythroid progenitor cells and a subset of lymphoid progenitor cells (Broudy). SCF is also a primary growth and activation factor for mast cells and eosinophils.

SCF exists in two biologically active splice forms: a soluble and a transmembrane isoform. Upon binding to its receptor (c-Kit tyrosine kinase receptor; CD117), it activates PI3K, JAK/STAT, and MAPK pathways. SCF and signaling from c-Kit have also been reported to play an important role in pigmentation, fertility, vasculogenesis, motility of the gut via c-Kit positive interstitial cells of Cajal, and in the migration of neuronal stem and progenitor cells to sites of injury in the brain.

Product Information

Alternative Names: Kit ligand, Mast cell growth factor, Steel factor, Stem cell factor

Accession Number: P21583

Amino Acid Sequence: MEGICRNRVT NNVKDVTKLV ANLPKDYMIT LKYVPGMDVL PSHCWISEMV VQLSDSLTDL LDKFSNISEG LSNYSIIDKL VNIVDDLVEC VKENSSKDLK KSFKSPEPRL FTPEEFFRIF NRSIDAFKDF VVASETSDCV VSSTLSPEKD SRVSVTKPFM LPPVA

Predicted Molecular Mass: 18.6 kDa

Species: Human

Product Formulation: Lyophilized from a sterile-filtered aqueous solution containing sodium phosphate and sodium chloride, pH 7.5.

Source: E. coli

Purity: ≥ 97%

Specifications

Activity: The specific activity is ≥ 6.6 x 10^4 units/mg (EC50 ≤ 15 ng/mL), as determined by a cell proliferation assay using TF-1 cells.

Endotoxin Level: Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 0.1 EU/µg protein.

Preparation and Storage

Stability and Storage: Store at -20 to -80°C. Stable as supplied for 12 months from date of receipt.

Preparation: Centrifuge vial before opening. Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex.
OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -20 to -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data

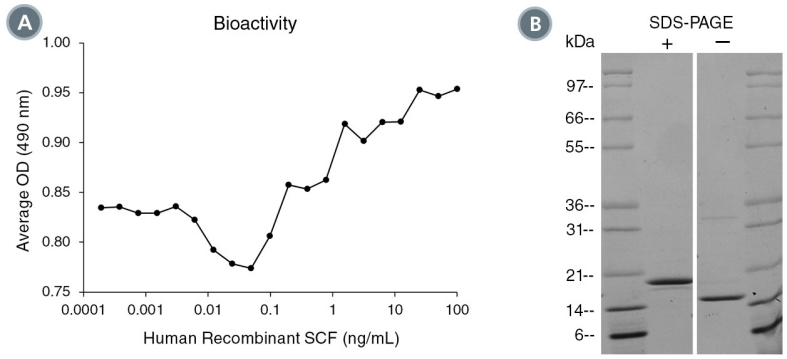

Figure 1. Biological Activity and Molecular Mass of Human Recombinant SCF

(A) The biological activity of Human Recombinant SCF was tested by its ability to promote the proliferation of TF-1 cells. Cell proliferation was measured after 72 hours of culture. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is 1 ng/mL. (B) 1 µg of Human Recombinant SCF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant SCF has a predicted molecular mass of 18.6 kDa.

Related Products

For a complete list of cytokines or peptide pools, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Broudy VC. (1997) Stem cell factor and hematopoiesis. Blood 90(4): 1345–64.

Kent D et al. (2008) Regulation of hematopoietic stem cells by the steel factor/KIT signaling pathway. Clin Cancer Res 14(7): 1926–30.

Martin FH et al. (1990) Primary structure and functional expression of rat and human stem cell factor DNAs. Cell 63(1): 203–11.